

2002

EDITION

INSTRUCTOR

Hazardous Materials Transportation Training Modules

MODULE 1 The Hazardous Materials Table



U.S. Department of Transportation
Research and Special Programs
Administration

§ 172.101 HAZARDOUS MATERIALS TABLE

Sym- bols	Hazardous materials descrip- tions and proper shipping names	Hazard class or Di- vision	Identifi- cation Num- bers	PG	Label Codes	Special provisions	Packaging (§173.***)		
							Excep- tions (SA)	Non- bulk (SB)	Bulk (BC)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8A)	(8B)	(8C)
D	Acetylene, see p- nitrodimethylamine.	2.2	NA1956		2.2		306	306	None
	Accumulators, electric, see Bat- teries, wet etc.								
A	Accumulators, pressurized, pneumatic or hydraulic (containing gas).	3	UN1988	II	3	T7	150	202	242
	Acetal	3	UN1989	I	3	A3, B16, T26, T28, T29	None	201	243
A	Acetaldehyde	3	UN1841	III	9		155	204	240
	Acetaldehyde ammonia	3	UN2332	III	3	B1, T8	150	203	242
A	Acetaldehyde oxime	8	UN2769	II	8, 3	A3, A6, A7, A16, E2, T8	154	202	243
	Acetic acid, glacial or Acetic acid solution, with more than 60 percent acid, by mass.								

Script

Visual

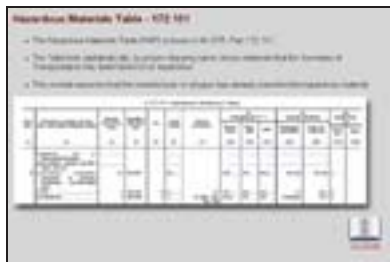
Narrative

1



The Hazardous Materials Table, or HMT, is the backbone of the Hazardous Materials Regulations. Understanding and knowing how to use the HMT is the first step toward compliance.

2



For each material listed, the 172.101 Hazardous Materials Table identifies each hazard class or specifies that the material is forbidden in transportation. It provides the proper shipping name of the material or directs the user to the preferred proper shipping name. In addition, the HMT specifies or references requirements pertaining to labeling, packaging, quantity limits aboard aircraft, and stowage of hazardous materials aboard vessels.

Quick Review #1

The Hazardous Materials Table, 172.101, lists materials _____, by proper shipping name, along with other information required for preparing shipments of hazardous materials for transportation.

- A. in random order
- B. numerically
- C. by hazard class
- D. alphabetically

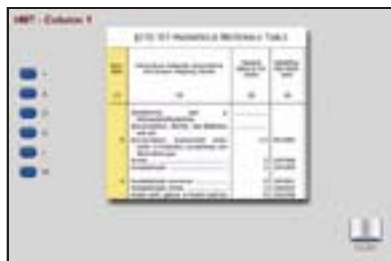
Correct Answer: D alphabetically

3



The Hazardous Materials Table usually referred to as the HMT or the Table, governs the transportation of hazardous materials by all modes air, water, rail and highway. It is important to use the Hazardous Materials Table correctly. The Table format contains columns numbered 1 thru 10. Click on each of the buttons labeled Column 1-10 to learn about the information contained in that column.

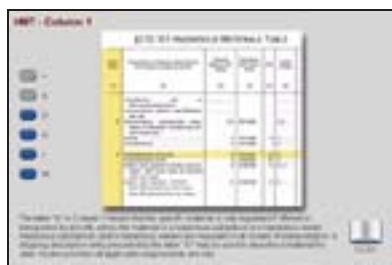
4



Column (1) may contain any one of six symbols: a plus sign or the capital letters A, D, G, I, and W. Click on each of these buttons to learn more about the use of these symbols and to view an example.



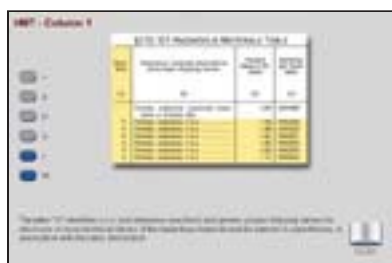
The plus (+) sign fixes the proper shipping name, hazard class and packing group listed in Columns 2, 3, and 5, of the HMT. “Fixes” means you may not change the proper shipping name, hazard class, or packing group, even if the materials do not meet that hazard class definition. When the “+” sign is assigned to a proper shipping name in Column 1 of the HMT it means that the material is known to pose a risk to humans. The Associate Administrator for Hazardous Materials Safety may authorize an appropriate alternate proper shipping name and hazard class.



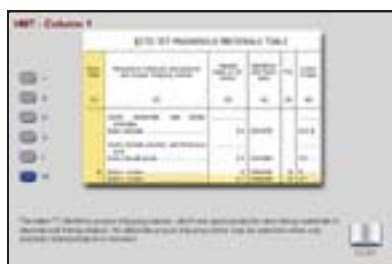
The letter “A” in Column 1 means that the specific material is only regulated if offered or transported by aircraft, unless the material is a hazardous substance or a hazardous waste. Hazardous substances and/or hazardous wastes are regulated in all modes of transportation. A shipping description entry preceded by the letter “A” may be used to describe a material for other modes provided all applicable requirements are met.



The letter “D” identifies the proper shipping names, which are appropriate for describing materials for domestic transportation but may be inappropriate for international transportation under the provisions of international regulations (e.g., IMO, ICAO). An alternate proper shipping name may be selected when either domestic or international transportation is involved.



The letter “G” identifies n.o.s. (not otherwise specified) and generic proper shipping names for which one or more technical names of the hazardous material must be entered in parentheses, in association with the basic description.



The letter “I” identifies proper shipping names, which are appropriate for describing materials in international transportation. An alternate proper shipping name may be selected when only domestic transportation is involved.

49 CFR 173.133 Hazardous Materials Table

Hazardous Material Name	Hazard Class	Packing Group	Other
Flammable liquid, n.o.s.	3	II	W
Flammable solid, n.o.s.	4.1	II	W
Flammable gas, n.o.s.	2.1	II	W
Flammable compressed gas, n.o.s.	2.2	II	W
Flammable liquid, n.o.s.	3	III	W
Flammable solid, n.o.s.	4.1	III	W
Flammable gas, n.o.s.	2.1	III	W
Flammable compressed gas, n.o.s.	2.2	III	W
Flammable liquid, n.o.s.	3	II	W
Flammable solid, n.o.s.	4.1	II	W
Flammable gas, n.o.s.	2.1	II	W
Flammable compressed gas, n.o.s.	2.2	II	W

The letter “W” in Column 1 means the specific material is regulated only if offered or transported by vessel, unless the material is a hazardous substance or a hazardous waste. Hazardous substances or hazardous wastes are regulated in all modes of transportation.

Quick Review #2

Instructions: To complete this Quick Review, match the terms with the corresponding description.

Terms:

- a. A
- b. D
- c. G
- d. I
- e. W
- f. +

Statements:

- _____ 1. Fixes the proper shipping name, hazard class and packing group
- _____ 2. Identifies shipping names appropriate for domestic transportation
- _____ 3. Identifies shipping names appropriate for international transportation
- _____ 4. Restricts materials offered or intended for transportation by aircraft
- _____ 5. Identifies n.o.s. and generic shipping names for which technical names must be entered in parentheses with the basic description
- _____ 6. Restricts materials offered or intended for transportation by vessel

Correct Answers:

- 1. f +
- 2. b D
- 3. d I
- 4. a A
- 5. c G
- 6. e W

Quick Review #3

Do not change the proper shipping _____, hazard class, or packing group of an “+” sign entry material, unless authorized by the Associate Administrator for Hazardous Materials Safety.

- A. name
- B. nomenclature
- C. description
- D. item

Correct Answer: A name

Quick Review #4

The letter “A” in Column 1 of the HMT means regulated if transported by _____, unless the hazardous material is also a hazardous substance or hazardous waste. In that case, it’s regulated in all modes of transportation.

- A. air
- B. highway
- C. rail
- D. water

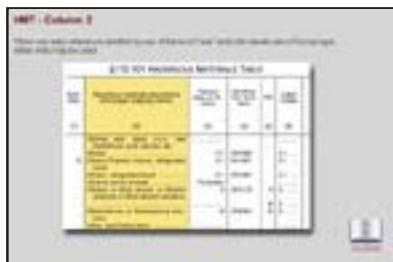
Correct Answer: A air

5

The image shows a portion of the 2002 Hazardous Materials Table (HMT). The entry for 'Carbon dioxide, solid' is highlighted in yellow. In Column 1, the entry is marked with 'AW', which signifies that the material is regulated for air and water transport only. The table also lists hazard classes and packing groups for this material.

Locate the proper shipping name “Carbon dioxide, solid” in the HMT. Notice that “Carbon dioxide, solid” has an “AW” in Column 1 of the HMT. “AW” means regulated by air and water transportation only. When the material is a hazardous substance or a hazardous waste, it is regulated in all modes of transportation.

6



The image shows a screenshot of the Hazardous Materials Table (HMT) from the 2002 Edition of the Department of Transportation's Hazardous Materials Regulations. The table is titled "HMT - Column 2" and shows a list of hazardous materials with their corresponding shipping names. The shipping names are listed in two columns: Roman type and Italic type. The Roman type shipping names are listed in the first column, and the Italic type shipping names are listed in the second column. The table is organized into columns for Hazard Class, Proper Shipping Name, and Hazard Label.

Now look at Column 2 of the HMT. Proper shipping names are found in Column 2. Look closely at the two types of lettering, Roman and Italic. Proper shipping names are written in Roman type only. It is critical that the proper shipping name be spelled correctly on shipping papers. Proper shipping names in italics may not be used to describe hazardous materials.

Quick Review #5

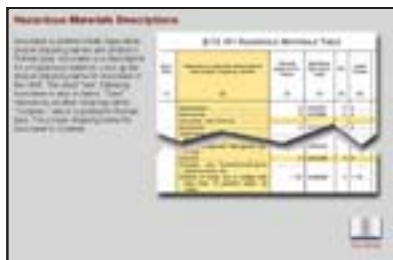
Instructions: Select the correct answer from the choices provided.

Proper shipping names are shown in italic type in the HMT.

- A. True
- B. False

Correct Answer: B False

7



The image shows a screenshot of the Hazardous Materials Table (HMT) from the 2002 Edition of the Department of Transportation's Hazardous Materials Regulations. The table is titled "HMT - Column 2" and shows a list of hazardous materials with their corresponding shipping names. The shipping names are listed in two columns: Roman type and Italic type. The Roman type shipping names are listed in the first column, and the Italic type shipping names are listed in the second column. The table is organized into columns for Hazard Class, Proper Shipping Name, and Hazard Label.

Words in italics are not part of the proper shipping name, but may be used in addition to the proper shipping name.

8

Proper Shipping Names

Find the proper shipping name for the material. Refer to the Hazardous Materials Table for the proper shipping name, hazard class or division, and identification number.

2019-2020 Hazardous Materials Table		Hazardous Materials Table		Hazardous Materials Table	
Proper Shipping Name	Hazard Class or Division	Identification Number	Proper Shipping Name	Hazard Class or Division	Identification Number
Blue asbestos	6.1	2533	Brown asbestos	6.1	2533
Blue asbestos, <i>see</i> Brown asbestos			Brown asbestos, <i>see</i> Blue asbestos		

Find the proper shipping name Blue asbestos. Notice the entry Blue asbestos or Brown asbestos. The italicized or means that any of the terms in the sequence may be used as part of the proper shipping name, as appropriate.

9

Multiple Acceptable Proper Shipping Names

Find the proper shipping name for the material. Refer to the Hazardous Materials Table for the proper shipping name, hazard class or division, and identification number.

2019-2020 Hazardous Materials Table		Hazardous Materials Table		Hazardous Materials Table	
Proper Shipping Name	Hazard Class or Division	Identification Number	Proper Shipping Name	Hazard Class or Division	Identification Number
Ethyl alcohol	3	1111	Ethanol	3	1111
Ethyl alcohol, <i>see</i> Ethanol			Ethanol, <i>see</i> Ethyl alcohol		

The word “see” after a proper shipping name entry refers to another entry. If both names are in Roman type, you may use either name as the proper shipping name. Find the shipping name “Ethyl alcohol.” Notice that “Ethyl alcohol” is in Roman type and has no hazard class or division or identification number. However, the italicized word “see” refers you to “Ethanol;” Find “Ethanol.” This is where the hazard class or division and the ID No. are located. You may use either “Ethyl alcohol” or “Ethanol” as the proper shipping name since both names are in Roman type.

Quick Review #6

Instructions: Match the item with the statement that it correctly completes.

Items: A. or

B. plural

C. see

1. The word “_____” in italics means that any of the terms in the sequence may be used as part of the proper shipping name, as appropriate.
2. The word “_____” after a shipping name entry refers to a second acceptable shipping name.
3. Proper shipping names may be written in the singular or _____, in CAPITALS or lower case.

Correct Answers:

1. A or

2. C see

3. B plural

10



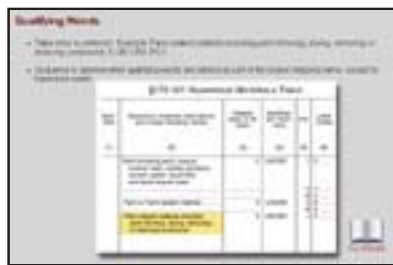
The words “poison” or “poisonous” may be used interchangeably with the word “toxic” when only domestic transportation is involved. When international transportation is involved, only the word “toxic” may be used.

11



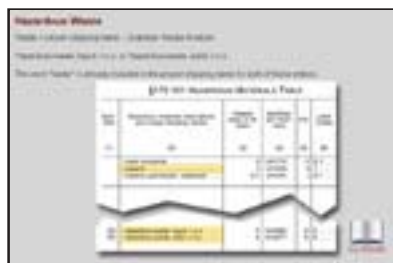
Look at the name on this drum. Is it a proper shipping name? Yes, “Flammable liquids, n.o.s.” is listed in Column 2 of the HMT in Roman letters and is a proper shipping name.

12



Except for hazardous waste, when qualifying words are utilized as part of the proper shipping name, their sequence in the package markings and shipping paper description is optional; however, the entry as shown in the HMT is the preferred sequence. Qualifying words shown in italics are not part of the proper shipping name. For example, for the entry “*Paint related material including paint thinning, drying, removing or reducing compound, 3, UN 1263, PG I*”, the qualifying words shown in italics are not required to be shown as part of the proper shipping name.

13



When the material is a hazardous waste and the word “waste” is not included in the HMT description, the word “waste” must be placed before the proper shipping name. For example, Acetone would become Waste Acetone. The word “waste” need not precede a proper shipping name that already includes the word “waste”. “Hazardous waste, liquid, n.o.s.” or “Hazardous waste, solid, n.o.s.” are two examples that do not require the addition of the word waste.

14



Under certain conditions, a mixture or solution not identified specifically by name, comprised of a hazardous material identified in the HMT by technical name, and a non-hazardous material, must be described using the proper shipping name of the hazardous material and the qualifying word “mixture” or “solution”, as appropriate

Quick Review #7

Instructions: Match the term with the statement that it correctly completes.

Terms:

- A. hazardous waste
- B. mixture or solution
- C. qualifying
- D. toxic

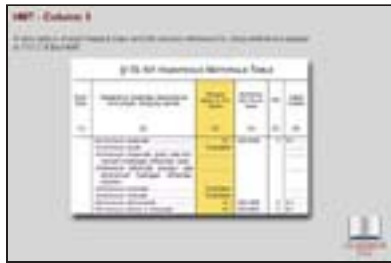
Statements:

1. For domestic transportation, the word “poison” or “poisonous” may be used interchangeably with the word “_____”.
2. When _____ words are used, the sequence is optional; but the HMT sequence is preferred.
3. When the material is a _____ and the word “waste” is not included in the HMT description, the word “waste” must precede the listed proper shipping name.
4. The word _____ shall be added to the name of the hazardous material, if a hazardous material has a non-hazardous product added.

Correct Answers:

1. D toxic
2. C qualifying
3. A hazardous waste
4. B mixture or solution

15



Column 3 of the HMT contains a designation of the hazard class or division corresponding to each proper shipping name, or the word “Forbidden”. Forbidden means that the material may not be offered for transportation or transported. This prohibition does not apply if the material is diluted, stabilized, or incorporated in a device, and it is classed in accordance with the definitions in Part 173 of the HMR.

When test data or new data indicates a need to modify the “Forbidden” designation, the data must be submitted to the Associate Administrator for Hazardous Materials Safety for approval.

16



The hazard class of a hazardous material is indicated either by its class (or division) number, its class name, or by the letters “ORM-D”. The table contained in 173.2 lists the class numbers, division numbers, class or division names and those sections of the subchapter, which contain definitions for classifying hazardous materials, including forbidden materials.

17



When the entry for combustible liquids in Column 3 references Class 3, each reference to a Class 3 material must be modified to read “Combustible liquid” when reclassified in accordance with 173.150(e) or (f).

Quick Review #8

Instructions: Select the correct answer from the choices provided.

Column 3 lists the hazard class, or division of the material, or the word “Prohibited.” Class 3 materials may be reclassified as “Combustible liquids” in accordance with 173.150(e-f).

- A. True
- B. False

Correct Answer: B False

18

Column 4 of the HMT lists the 4digit identification number assigned to each proper shipping name. These 4digit numbers provide quick identification of all hazardous materials. It is critical to emergency responders that the numbers are accurate and that they are correctly written and legibly displayed.

19

Identification numbers preceded by “UN” for United Nations are descriptions of materials for domestic and/or international shipments, while identification numbers preceded by “NA” for North America may be used to describe certain materials when transported within the United States or between the United States and Canada.

Quick Review #9

Instructions: Match the item with the statement that it correctly identifies.

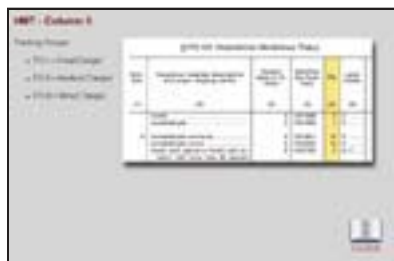
Items: A. International
B. identification number
C. Canada

1. The number assigned to the proper shipping name that is found in Column 4 of the HMT.
2. An ID No. with “UN” and four numerical digits indicates a hazardous material properly labeled for shipment to this locale.
3. An ID No. with “NA” and four numerical digits indicates a hazardous material properly labeled for shipment to this locale.

Correct Answers:

1. B identification number
2. A International
3. C Canada

20



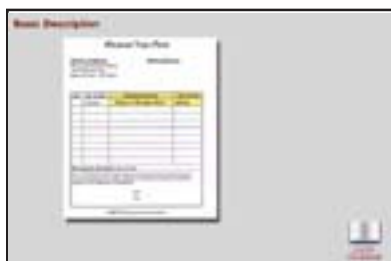
Column 5 of the HMT specifies one or more packing groups assigned to a hazardous material. If a material is assigned to more than one packing group, the shipper must determine the correct packing group for the hazardous material. The packing group of the hazardous material will have an effect on a material's packaging requirements. This grouping is according to the relative degree of danger presented by the hazardous material. Packing Group One indicates the greatest danger, while Packing Group Two indicates a medium level of danger, and Packing Group Three indicates a minor level of danger.

21

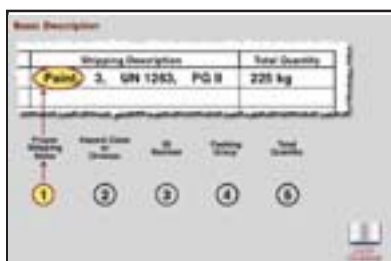


The packing group number must be indicated in Roman numerals on shipping papers, when applicable, and may be preceded by the letters “PG.” There are no packing groups for Class 2, Class 7, Division 6.2, and ORMD materials.

22



On shipping papers, the hazardous material must be accurately described and identified in the proper sequence with



the proper shipping name (including the technical name, when applicable),

Basic Description

Shipping Description		Total Quantity
Paint, 3	GN 1263, PG II	225 kg

Proper Shipping Name Hazard Class or Division ID Number Packing Group Total Quantity
 ① ② ③ ④ ⑤

the hazard class or division,

Basic Description

Shipping Description		Total Quantity
Paint, 3	GN 1263, PG II	225 kg

Proper Shipping Name Hazard Class or Division ID Number Packing Group Total Quantity
 ① ② ③ ④ ⑤

the ID number,

Basic Description

Shipping Description		Total Quantity
Paint, 3	GN 1263, PG II	225 kg

Proper Shipping Name Hazard Class or Division ID Number Packing Group Total Quantity
 ① ② ③ ④ ⑤

the packing group (when applicable); and

Basic Description

Shipping Description		Total Quantity
Paint, 3	GN 1263, PG II	225 kg

Proper Shipping Name Hazard Class or Division ID Number Packing Group Total Quantity
 ① ② ③ ④ ⑤

the total quantity. All shipping papers must describe the hazardous materials in this sequence: the proper shipping name, the hazard class or division, the ID number, the packing group, and the total quantity. These five items make-up the basic description.

Quick Review #10

Instructions: Match the terms to the statement that it correctly completes.

Terms:

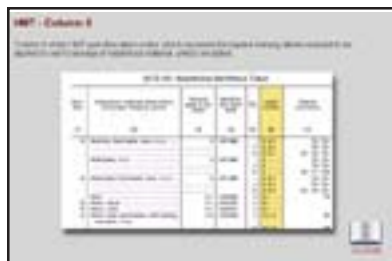
- A. PG I
- B. PG II
- C. PG III
- D. group
- E. packing group
- F. basic

Statements:

1. Column 5 of the HMT lists the _____ assigned to the hazardous material.
2. The _____ description consists of proper shipping name, hazard class or division, identification number, packing group, and the total quantity.
3. The packing group that indicates great danger is _____.

Correct Answers:

1. E packing group
2. F basic
3. A PG I

23

Column 6 of the HMT specifies label codes, which represent the hazard warning labels required to be applied to each package of hazardous material, unless excepted. If two label codes are listed, the first represents the primary hazard and the second represents the subsidiary hazard. Additional labeling requirements are found in 172.402.

Quick Review #11

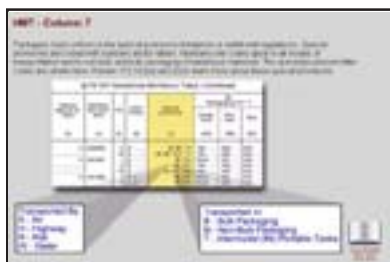
Instructions: Select the correct answer from the choices provided.

Column 6 of the HMT lists the label codes representing the hazard warning labels to be applied to each hazardous materials package.

- A. True
B. False

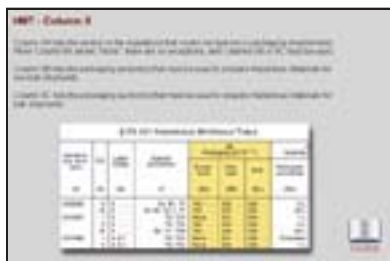
Correct Answer: A True

24



Column 7 of the HMT specifies codes for special provisions applicable to packaging, packaging requirements, certification, and marking or labeling for a hazardous material. These special provisions are in addition to the standard packaging requirements.

25



You have identified the material from Columns 2, 3, 4, 5, 6, and 7. Now, the hazardous material needs to be packaged in accordance with the HMR. Column 8 of the HMT specifies the applicable sections for packaging authorizations. Notice that Column 8 is divided into three parts - Column 8A, 8B and 8C.

Quick Review #12

Instructions: Match the items with the statement it correctly answers

- Items: A. Non-bulk packages
B. Packaging exceptions
C. Bulk packages

_____ 1. Column 8A covers this type of packing requirements.

_____ 2. Column 8C covers this type of packing requirements.

_____ 3. Column 8B covers this type of packing requirements.

Correct Answers:

1. B Packaging exceptions
2. C Bulk packages
3. A Non-bulk packages

26

Reference Location

Table 1: Relationship between hazard classes and packaging requirements

Hazard Class	Column 8A	Column 8B	Column 8C
1.1	201	201	201
1.2	201	201	201
1.3	201	201	201
1.4	201	201	201
1.5	201	201	201
1.6	201	201	201
2	201	201	201
3	201	201	201
4	201	201	201
5	201	201	201
6	201	201	201
7	201	201	201
8	201	201	201
9	201	201	201

The sections cited under Columns 8A, 8B, or 8C are found in Part 173.

Reference Location

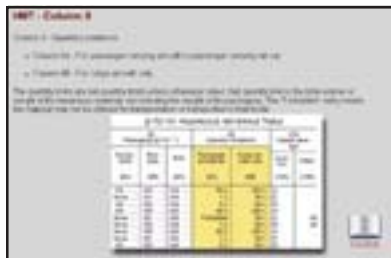
Table 1: Relationship between hazard classes and packaging requirements

Hazard Class	Column 8A	Column 8B	Column 8C
1.1	201	201	201
1.2	201	201	201
1.3	201	201	201
1.4	201	201	201
1.5	201	201	201
1.6	201	201	201
2	201	201	201
3	201	201	201
4	201	201	201
5	201	201	201
6	201	201	201
7	201	201	201
8	201	201	201
9	201	201	201

For example: the number “211” in column 8B indicates

We will now do a practical exercise using the HMT. Please open your manual to Practical Exercise #1, page 24, and follow the directions to student(s).

27



The screenshot shows a portion of the HMT. Column 9 is highlighted in yellow and is divided into two sections. The top section is for 'Passenger-Carrying Aircraft' and the bottom section is for 'Cargo Aircraft Only'. The table lists various hazardous materials and their corresponding limits for transport.

Column 9 is divided into two columns and prescribes the maximum quantity limits for hazardous material transported in one package by either a passenger carrying aircraft or rail car, or by a cargo aircraft only.

Quick Review #13

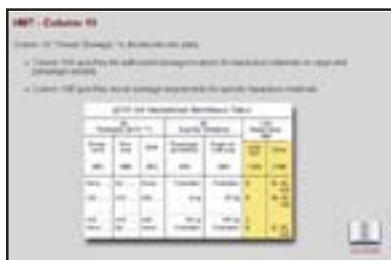
Instructions: Select the best answer from the four choices provided.

Column 9 of the HMT limits or forbids the offering or transporting of hazardous materials by _____, passenger-carrying rail car or cargo aircraft only.

- A. charter aircraft
- B. passenger-carrying bus
- C. passenger-carrying vessel
- D. passenger-carrying aircraft

Correct Answer: D passenger-carrying aircraft

28



The screenshot shows a portion of the HMT. Column 10 is highlighted in yellow and is divided into two sections. The top section is for 'Vessel Stowage' and the bottom section is for 'Vessel Stowage Requirements'. The table lists various hazardous materials and their corresponding stowage requirements.

Column 10, “Vessel Stowage,” is divided into two parts. Column 10A specifies the authorized stowage locations for hazardous materials on cargo and passenger vessels. Column 10B specifies vessel stowage requirements for specific hazardous materials. For more information about Column 10 and the five authorized stowage locations, please review Section 172.101(k).

Quick Review #14

Instructions: Select the term that correctly completes the statement.

Column 10 of the HMT specifies requirements for transportation of hazardous material by cargo and passenger carrying _____.

Terms:

- A. vessels
- B. buses
- C. trucks
- D. rail cars

Correct Answer: A vessels

29



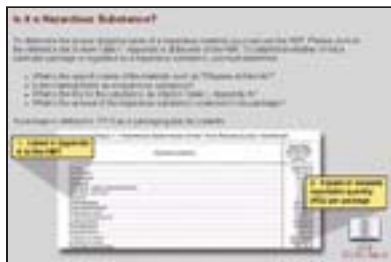
Hazardous materials often fit more than one category, such as hazardous substance, marine pollutant, and hazardous waste. For example, Acetone, a Class 3 flammable liquid material is listed in Table I to Appendix A, and may meet the definition of a hazardous substance. Review 171.8 for more information on the definition for a hazardous substance.

30



Hazardous substances are listed in Table I - Appendix A to Section 172.101, "List of Hazardous Substances and Reportable Quantities."

31



To determine if a material is a hazardous substance, you must use Table I - Appendix A of the HMT.

32



Now let's determine if "Ethylene dichloride" is a hazardous substance. Locate the name "Ethylene dichloride" in the left-hand column of Table I - Appendix A. Follow across the page to the far right column, entitled "Reportable Quantity." Reportable quantities are shown in pounds and kilograms. The RQ for Ethylene dichloride is 100 pounds or 45.4 kilograms per package. For this exercise, let's assume we have 5,500 pounds of "Ethylene dichloride" in a cargo tank, which is one package. The material is not in a mixture or solution. Is the "Ethylene dichloride," as packaged, a hazardous substance?



Answer these two questions. "Is the material listed in Table I - Appendix A?" Yes, it is listed.

"Does the amount of material equal or exceed the RQ for "Ethylene dichloride?"

Yes, it exceeds the RQ, there are more than 100 pounds in one package. Therefore, as packaged, the "Ethylene dichloride" is a hazardous substance for the purpose of transportation.

Quick Review #15

Instructions: Select the correct answer from the choices provided.

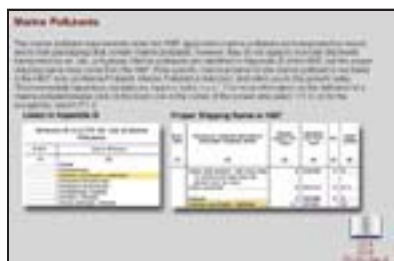
When a hazardous material is listed in Table I - Appendix A of the HMT, and the amount of material in one package exceeds the Reportable Quantity, the hazardous material is also a hazardous substance.

- A. True
- B. False

Correct Answer: A True

We will now do a practical exercise using the HMT. Please open your manual to Practical Exercise #2, page 26, and follow the directions to student(s).

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The shipper must determine if the material is a marine pollutant. See if Acetone cyanohydrin, stabilized, is a marine pollutant by checking to see if it is listed in Appendix B to 172.101, List of Marine Pollutants. As you can see it is, so now check to see if Acetone, cyanohydrin, stabilized is a proper shipping name found in the HMT. It is in the HMT, thus Acetone cyanohydrin, stabilized, is a marine pollutant.

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If you look at Appendix B to 172.101, "List of Marine Pollutants", you will notice that Appendix B has two columns. Column 1 is entitled "S.M.P." for Severe Marine Pollutants and Column 2 is entitled "Marine Pollutant." If the product is listed in Column 2 of Appendix B, it is a Marine pollutant. If the letters "PP" appear in Column 1, the material listed in Column 2 is a Severe Marine Pollutant (S.M.P.). Otherwise it is not.

Quick Review #16

Marine pollutants are listed in what Appendix of the HMT?

- A. Appendix A
- B. Appendix B
- C. Appendix C
- D. Appendix D

Correct Answer: B Appendix B

Practical Exercises

Hazardous Materials Table, 172.101

Practical Exercise #1

Directions to Student(s)

The objective of the Hazardous Materials Table practical exercise is to provide practice working with the Table. Practical Exercise #1 lists eight shipping names. Determine, from the HMT, whether each shipping name is an authorized shipping name. If the shipping name is correct, write “yes” in Column 2. If the shipping name is incorrect, determine and write the correct shipping name in Column 2.

Next, using the HMT, record in the appropriate column of the practical exercise:

- the correct hazard class or division in Column 3;
- ID number in Column 4;
- packing group (PG) in Column 5 (if applicable);
- label codes in Column 6;
- special provisions, if any, in Column 7;
- packaging exceptions, if any, in Column (8A), and
- specific packaging sections in Columns (8B) and (8C).

Self-Evaluation

The practical exercise will evaluate your skill and facility in use of the HMT, 172.101. When you have completed and checked your work for accuracy, either review the practical exercise with the instructor or check the answers on page 34.

Hazardous Materials Table Practical Exercise

#1

Name*	Proper Shipping Name	Hazard Class or Division	ID Number	PG	Label	Special Provisions	Packaging Exceptions	Non-Bulk Packaging	Bulk Packaging
Col. 1	Col. 2	Col. 3	Col. 4	Col.5	Col. 6	Col. 7	Col. (8A)	Col. (8B)	Col. (8C)
Aluminum phosphide									
Amyltrichlorosilane									
Chlorodifluoromethane R22									
Metal, alkyl, solution, n.o.s.									
Articles, pyrophoric									
Ethyl nitrite solutions									
Electrolyte (acid) battery fluid									
Cotton									

* If the shipping name shown is correct, write yes in column 2. If incorrect, write the correct shipping name in Column 2.

Hazardous Materials Table, Appendix A

Practical Exercise #2

Directions to Student(s)

The objective of the HMT, Appendix A practical exercise is to provide practice working with the Table. Practical Exercise #2 lists eight shipping names. Determine if the materials are listed in Appendix A and indicate “yes” or “no” in Column 2 of the Practical Exercise.

In Column 3 enter the Reportable Quantity (RQ) in kilograms or pounds.

Is the material also listed in the HMT? Indicate “yes” or “no” in Column 4.

Self-Evaluation

The practical exercise will evaluate your skill in understanding the relationship between the HMT and Appendix A to the HMT. When you have completed and checked your work for accuracy, either review the practical exercise with the instructor or check the answers on page 35.

Hazardous Materials Table Appendix A

Practical Exercise #2

Name	Listed in Appendix A Yes or No	Reportable Quantity (RQ) (lbs/kg)	Listed in HMT Yes or No
Acetone			
2-Propenal			
Saccharin and salts			
Sodium nitrate			
Sulfur phosphide			
Toluene			
Aldrin			
Polychlorinated biphenyls (PCBs)			

Module 1 Test

1. Subpart B of Title 49 CFR, Part 172 is entitled_____.
 - A. Labeling
 - B. Table of Hazardous Materials and Special Provisions
 - C. Emergency Response Information
 - D. Shipping Papers
2. “Dieldrin” in a one-pound (net weight) package is regulated as a hazardous substance.
 - A. True
 - B. False
3. The packaging requirements for the proper shipping name “Flammable liquids, n.o.s., 3, UN1993, PG I” are found in Column ____of the HMT.
 - A. 8
 - B. 3
 - C. 7
 - D. 10A
4. What is the correct label for a “Consumer commodity”?
 - A. Poison label
 - B. Oxidizer label
 - C. No label required
 - D. Organic label
5. The “+” sign in Column 1 of the HMT _____.
 - A. identifies hazardous substances
 - B. fixes the ID number and shipping name
 - C. fixes the mode of transportation
 - D. fixes the proper shipping name, hazard class or division, and PG
6. Castor beans are regulated when transported by _____.
 - A. Air (A)
 - B. G
 - C. Air and Water (AW)
 - D. Water (W)

7. The hazard class or division for “Propane” is_____.
- A. 3 (Flammable liquids)
 - B. 5.1 (Oxidizer)
 - C. 2.1 (Flammable gas)
 - D. 2.2 (Nonflammable gas)
8. What is the Packing Group for Potassium peroxide?
- A. PG II
 - B. PG I
 - C. PG III
 - D. PG 1
9. The non-bulk packaging authorization requirements for “Mercury oxide” are found in Section_____.
- A. Column 8B
 - B. 173.242
 - C. Column 8C
 - D. 173.212
10. The proper shipping names for hazardous materials are found in Column_____ of the HMT.
- A. 2
 - B. 3
 - C. 4
 - D. 5
11. A shipment of “Aniline” with an aggregate gross weight totaling 5,000 pounds, packaged in metal drums with a gross weight of 100 pounds each, is regulated as a hazardous substance.
- A. True
 - B. False
12. The definition of a hazardous material is found in Section _____ of the Hazardous Materials Regulations.
- A. 173.50
 - B. 173.6
 - C. 171.14
 - D. 171.8

13. The letter “G” in Column 1 identifies_____.
- A. hazardous materials
 - B. hazardous substances
 - C. Marine pollutants
 - D. n.o.s. and generic proper shipping names
14. The packaging exceptions for the proper shipping name “Flammable liquids, n.o.s.” are found in Column _____of the HMT.
- A. 8C
 - B. 9A
 - C. 8A
 - D. 8B
15. A 110-pound (net weight) package of “Allyl alcohol” is regulated as_____.
- A. a hazardous material
 - B. a hazardous substance
 - C. both of the above
 - D. not regulated
16. “Sodium hypochlorite, solution” is a proper shipping name.
- A. True
 - B. False
17. The hazardous material “Boron tribromide, UN2692” is regulated in_____mode(s) of transportation.
- A. air
 - B. highway
 - C. all
 - D. vessel
18. A ten-pound package of “Chloroform” is regulated in_____mode(s) of transportation.
- A. air
 - B. all
 - C. highway
 - D. vessel

19. “Butane” and “Liquefied petroleum gas” are both proper shipping names.
- A. True
 - B. False
20. The letters “RQ” mean_____.
- A. registered quantity
 - B. restricted quota
 - C. reportable quantity
 - D. required quantity
21. The hazard class or division for the proper shipping name “Consumer commodity” is_____.
- A. Class 9
 - B. Class 3
 - C. Div. 6.1
 - D. ORM-D
22. What is the ID number for the proper shipping name “Nickel nitrate?”
- A. UN2726
 - B. UN1653
 - C. UN2725
 - D. UN2527

Test Answers

Question	Answer/Explanation	49 CFR Reference
1.	B. Table of Hazardous Materials and Special Provisions	
2.	A. True It is listed in Appendix A to the HMT as a hazardous substance, and it meets the reportable quantity (RQ) for the material.	
3.	A. 8 – Columns (8A), (8B), and (8C)	
4.	C. No label required	172.101, Column 3
5.	D. fixes the proper shipping name, hazard class or division, and PG Answers A, B, and C are not correct. Hazardous substances are identified in Appendix A of the HMT. They are listed by material and corresponding reportable quantities (RQs) and meet the hazardous substances definition in 171.8. The material ID number is listed in Column 4 of the HMT, 172.101. The mode of transportation is determined by the symbol shown in Column 1 of the HMT, i.e., unless the material is a hazardous substance or hazardous waste; “A” means regulated only by Air; “W” means regulated only by Water. A hazardous substance and/or hazardous waste is regulated in all modes of transportation. If there is no “A” or “W” in Column 1, the material is regulated in all modes of transportation.	172.101(b)(1)
6.	C. Air and Water (AW)	
7.	C. 2.1 (Flammable gas) is the division shown in Column 3 of the HMT, 172.101, for the proper shipping name “Propane”. 3 (Flammable liquids) and 2.2 (Nonflammable gas) are not listed as hazard class or division for “Propane.” There is no division 5.1 that is an “Oxidizer.”	
8.	B. PG I	172.101, Column 5
9.	D. 173.212	
10.	A. 2 – Column 2	

11. B. False
It is listed in Appendix A to the HMT as a hazardous substance but it does not meet or exceed the reportable quantity (RQ) of 5,000 pounds per package.
12. D. 171.8, Definitions and Abbreviations
13. D. n.o.s. and generic proper shipping names 172.101(b)(4)
14. C. 8A – Column (8A), 172.101
15. C. both of the above
It is listed in the HMT and in Appendix A to the HMT as a hazardous substance and it exceeds the reportable quantity (RQ) in one package for the material.
172.101
16. B. False
“Sodium hypochlorite” is shown in HMT, in italics and not in Roman type.
Therefore, it is not a proper shipping name. 172.101(c)
17. C. all – All modes – there is no “A” or “W” in Column 1 of the HMT
18. B. all – All modes – Chloroform is regulated in all modes of transportation.
172.101(b)
19. A. True
Both “Butane” and “Liquefied petroleum gas,” are shown in the HMT in Roman type. Therefore, both names are proper shipping names.
172.101(c)
20. C. reportable quantity
171.8, Definitions and Abbreviations
21. D. ORM-D – no label is required, as shown in Column 6 of HMT.
22. C. UN2725
Nickel nitrate, ID No. UN 2725, is in 172.101, Column 4.

Hazardous Materials Table Practical Exercise Answers

#1

Name*	Proper Shipping Name	Hazard Class or Division	ID Number	PG	Label	Special Provisions	Packaging Exceptions	Non-Bulk Packaging	Bulk Packaging
Col. 1	Col. 2	Col. 3	Col. 4	Col. 5	Col. 6	Col. 7	Col. (8A)	Col. (8B)	Col. (8C)
Aluminum phosphide	yes	4.3	UN1397	I	4.3, 6.1	A8, A19, B100, N40	None	211	242
Amyltrichlorosilane	yes	8	UN1728	II	8	A7, B2, B6, N34, T8, T26	None	202	242
Chlorodifluoromethane R22	yes	2.2	UN1018	None	2.2	None	306	304	314/315
Metal, alkyl, solution, n.o.s.	yes	3	NA9195	II	3	None	150	202	242
Articles, pyrophoric	yes	1.2L	UN0380	II	1.2L	None	None	62	None
Ethyl nitrite solutions	yes	3	UN1194	I	3, 6.1	None	None	201	None
Electrolyte (acid) battery fluid	Battery fluid, acid	8	UN2796	II	8	A3, A7, B2, B15, N6, N34, T9, T27	154	202	242
Cotton	yes	9	NA1365	None	9	137, W41	None	None	None

* If the shipping name shown is correct, write yes in column 2. If incorrect, write the correct shipping name in Column 2.

Hazardous Materials Table

Appendix A Practical Exercise Answers

#2

Name	Listed in Appendix A Yes or No	Reportable Quantity (RQ) (lbs/kg)	Listed in HMT Yes or No
Acetone	yes	5000/(2270)	yes
2-Propenal	yes	1/(0.454)	no
Saccharin and salts	yes	100/(45.4)	no
Sodium nitrate	no	—/—	yes
Sulfur phosphide	yes	100/(45.4)	no
Toluene	yes	1000/(454)	yes
Aldrin	yes	1/(0.454)	yes
Polychlorinated biphenyls (PCBs)	yes	1/(0.454)	yes